

What is claimed is:

1. A carbon anode produced by the process comprising:

providing a solution of organic aerogel or xerogel precursors including at least one of a phenolic resin, phenol (hydroxybenzene), resorcinol (1, 3-dihydroxybenzene), or catechol (1, 2-dihydroxybenzene) and at least one aldehyde compound selected from the group consisting of formaldehyde, acetaldehyde, furfuraldehyde;

adding (1) ceramic materials; (2) glassy materials based on borates, phosphates, or silicates with alkaline earth or transition metal cations; and/or (3) carbon materials to said precursor solution to form a precursor mixture;

gelling said precursor mixture to form a composite gel;

drying said composite gel; and

pyrolyzing said composite gel to form an aerogel/carbon composite or a xerogel/carbon composite.

2. The carbon anode recited in claim 1, wherein said drying is accomplished by supercritical-critical solvent extraction.

3. The carbon anode recited in claim 1, wherein said drying is accomplished by air drying.

4. The carbon anode recited in claim 1, wherein said ceramic materials are selected from the group consisting of silica, alumino-silicates, and ash derived from coal or petroleum clays.
5. The carbon anode recited in claim 1, wherein said graphitic materials are selected from the group consisting of carbon fibers, carbon paper, carbon rods, carbon fabrics, carbon screens, graphite or highly graphitized carbon structures.
6. The use of a pyrolyzed aerogel/carbon composite as the carbon anode in a molten electrolyte fuel cell.
7. The use recited in claim 6, wherein the aerogel component is phenol-based, resorcinol-based, or catechol-based.
8. The use of a pyrolyzed xerogel/carbon composite as the carbon anode in a molten electrolyte fuel cell.
9. The use recited in claim 8, wherein the xerogel component is phenol-based, resorcinol-based, or catechol-based.
10. The use of a pyrolyzed aerogel as the carbon anode in a molten electrolyte fuel cell or battery.

11. The use of a pyrolyzed xerogel as the carbon anode in a molten electrolyte fuel cell or battery.